

**I CLAIM:**

1. A gum based product comprising:
  - from 12-35% by weight of a gum base in the form of dough;
  - from 0-7.0% by weight of a plasticizer;
  - from 0.05 to 5.75% by weight of a nicotine source;
  - from 35-65% by weight of a filler;
  - from 1.5-9% by weight of betel nut powder having average particle size of between 45 $\mu$ m to 710 $\mu$ m;
  - from 0.1 to 4.5% by weight of one or more flavoring agent;
  - said gum-based product being in the form of gum pieces adapted to deliver 1.0 to 12.6 mg of nicotine per piece.
2. A gum product as claimed in claim 1 further comprising 0.1 to 3.7% of taste enhancer selected from catechu and or lime.
3. A gum product as claimed in claim 1 further comprising from 0.02 to 7.5% by weight of sweetening agent.
4. A gum product as claimed in claim 2 further comprising from 0.02 to 7.5% by weight of sweetening agent.
5. A gum product as claimed in claim 4 comprising:
  - from 25-34% by weight of a gum base in the form of dough;
  - from 1-1.5% by weight of plasticizer;
  - from 3 to 3.5% by weight of nicotine source;
  - from 35-55% by weight of filler;
  - from 4-6% by weight of betel nut powder of average particle size ranging from 45 $\mu$ m to 710 $\mu$ m;
  - from 0.5 to 3.0% of catechu;
  - from 0.1-6% by weight of sweetening agent;
  - from 0.1 to 1.5% by weight of said flavoring agent;

said gum based product being in the form of gum pieces having a rectangular or any other shape and adapted to deliver 1.0 to 7 mg of nicotine per piece.

6. A gum based product as claimed in claim 4 comprising:
  - from 25-34% by weight of a gum base in the form of dough;
  - from 1-1.5% by weight of plasticizer;
  - from 3 to 3.5% by weight of nicotine source;
  - from 35-55% by weight of filler;
  - from 4-6% by weight of betel nut powder of average particle size ranging from 45 $\mu$ m to 710 $\mu$ m;
  - from 0.1 to 0.7% of lime;
  - from 0.1-6% by weight of sweetening agent;
  - from 0.1 to 1.5% by weight of said flavoring agent;
  - said gum based product being in the form of gum pieces having a rectangular or any other shape and adapted to deliver 1.0 to 7 mg of nicotine per piece.
7. A gum product as claimed in of claim 4 comprising:
  - from 25-34% by weight of a gum base in the form of dough;
  - from 3 to 3.5% by weight of nicotine source;
  - from 35-55% by weight of filler;
  - from 4-6% by weight of betel nut powder of average particle size ranging from 45 $\mu$ m to 710 $\mu$ m;
  - from 0.5 to 3.0% of catechu and 0.1 to 0.7% of lime;
  - from 0.1-6% by weight of sweetening agent;
  - from 0.1 to 1.5% by weight of said flavoring agent;
  - said gum based product being in the form of gum pieces having a rectangular or any other shape and adapted to deliver 1.0 to 7 mg of nicotine per piece.
8. A gum based product as claimed in claim 3 wherein the plasticizer when present is propylene glycol or glycerin.

9. A gum based product as claimed in claim 4 wherein the plasticizer when present is propylene glycol or glycerin.
10. A gum based product as claimed in claim 3 wherein the filler is from the group consisting of powdered D-Sorbitol and powdered sugar.
11. A gum based product as claimed in claim 4 wherein the filler is from the group consisting of powdered D-Sorbitol and powdered sugar.
12. A gum-based product as claimed in claim 3, wherein the sweetening agent is selected from the group consisting of Aspartame, mannitol, and powdered sugar.
13. A gum based product as claimed in claim 4, wherein the sweetening agent is selected from the group consisting of Aspartame, mannitol, and powdered sugar.
14. A gum based product as claimed in claim 3 wherein the flavoring agent is selected from the group consisting of germanium oil, cardamom flavor, saffron flavor, clove oil, cinnamon flavor, tobacco flavor A, tobacco flavor B, tobacco flavor C, cardamom powder, and menthol powder or mentha piperita oil as peppermint source.
15. The gum based product of claim 14 wherein the flavoring agent is selected from the group consisting of:

<u>Flavoring agent</u>	<u>Range (% by wt)</u>
Germanium oil	0.7-0.9
Cardamom flavor	2-3
Saffron flavor	0.15-0.35
Clove oil	0.15-0.35
Cinnamon flavor	0.5-0.6
Tobacco flavor A	0.5-3.5
Tobacco flavor B	1.0-4.5
Tobacco flavor C	0.5- 1.5
Cardamom powder	0.5-1.5

Peppermint source 0.5-2.0.

16. The gum based product of claim 15 wherein the flavoring agent is selected from the group consisting of:

<u>Flavoring agent</u>	<u>Preferred range (% by wt)</u>
Germanium oil	0.75 – 0.85
Cardamom flavor	2.0 – 3.0
Saffron flavor	0.2 – 0.3
Clove oil	0.2 – 0.3
Cinnamon flavor	0.5 – 0.6
Tobacco flavor A	2.2 – 3.0
Tobacco flavor B	3.0 – 3.5
Tobacco flavor C	0.8 – 1.2
Cardamom powder	0.8 – 1.2
Peppermint source	0.8 – 1.2.

17. A gum based product as claimed in claim 3, wherein the gum based product is a chewing gum.
18. A gum based product as claimed in claim 4, wherein the gum based product is a chewing gum.
19. A process for preparing gum based product comprising:
- providing a mixture comprising 12-35% by weight of gum base, 0-7.0% by weight of plasticizer, 3-30% by weight of dough forming medium, a filler, 1.5-9% by weight of betel nut powder average particular size ranging from 45 $\mu$ m to 710 $\mu$ m;
  - heating the mixture to a temperature between 45°C to 65°C to soften the gum base and form a dough;
  - adding from 0.05 to 5.75% by weight of nicotine source to the dough;

- iv) adding 0.1 to 3.0% by weight of one or more flavoring agent such as herein described followed by addition of a further amount of filler and mixing the mass thoroughly to obtain the gum;
  - v) converting the said mass into gum pieces containing nicotine at a level of 1.0 to 12.6 mg per piece.
20. A process for preparing gum based product as claimed in claim 19 comprising:
- i) providing a mixture comprising 12-35% by weight of gum base, 0-7.0% by weight of plasticizer, 3-30% by weight of dough forming medium, a filler, 1.5-9% by weight of betel nut powder average particular size ranging from 45 $\mu$ m to 710 $\mu$ m; 0.1 to 3.7% of taste enhancer selected from catechu and or lime;
  - ii) heating the mixture to a temperature between 45°C to 65°C to soften the gum base and form a dough;
  - iii) adding from 0.05 to 5.75% by weight of nicotine source to the dough;
  - iv) adding 0.1 to 3.0% by weight of one or more flavoring agent such as herein described followed by addition of a further amount of filler and mixing the mass thoroughly to obtain the gum;
  - v) converting the said mass into gum pieces containing nicotine at a level of 1.0 to 12.6 mg per piece.
21. A process for preparing gum based product as claimed in claim 19 further comprising gradually adding 0.02-7.5% by weight of sweetening agent selected from the group consisting of Aspartame, mannitol, and powdered sugar.
22. A process for preparing gum based product as claimed in claim 20 further comprising gradually adding 0.02-7.5% by weight of sweetening agent selected from the group consisting of Aspartame, mannitol, and powdered sugar.
23. A process for preparing gum based product as claimed in claim 22 comprising:
- i) providing a mixture comprising 25-34% by weight of gum base, 1-1.5% by weight of plasticizer, 6-22% by weight of dough forming medium, a filler, 4-6% by weight of betel nut powder of average particle size ranging from 45 $\mu$ m to 710 $\mu$ m, 0.5 to 3.0% of catechu, 0.1-6% by weight of sweetening agent;

- ii) heating to a temperature between 45°C to 60°C to soften the gum base to form a dough;
- iii) adding 3 to 3.5% by weight of nicotine source to the dough;
- iv) adding 0.1 to 1.5% by weight of peppermint source or any other flavoring agent such as herein described followed by addition of a further amount of filler and mixing the mass thoroughly to obtain the gum;
- v) converting the said mass into gum pieces containing nicotine at a level of 1.0 to 7 mg per piece.

24. A process for preparing gum based product as claimed in claim 22 comprising:

- i) providing a mixture comprising 25-34% by weight of gum base, 1-1.5% by weight of plasticizer, 6-22% by weight of dough forming medium, a filler, 4-6% by weight of betel nut powder of average particle size ranging from 45µm to 710µm, 0.1 to 0.7% of lime, 0.1-6% by weight of sweetening agent;
- ii) heating to a temperature between 45°C to 60°C to soften the gum base to form a dough;
- iii) adding 3 to 3.5% by weight of nicotine source to the dough;
- iv) adding 0.1 to 1.5% by weight of peppermint source or any other flavoring agent such as herein described followed by addition of a further amount of filler and mixing the mass thoroughly to obtain the gum;
- v) converting the said mass into gum pieces containing nicotine at a level of 1.0 to 7 mg per piece.

25. A process for preparing gum based product as claimed in claim 22 comprising:

- i) providing a mixture comprising 25-34% by weight of gum base, 6-22% by weight of dough forming medium, a filler, 4-6% by weight of betel nut powder of average particle size ranging from 45µm to 710µm, 0.5 to 3.0% of catechu and 0.1 to 0.7% lime, 0.1-6% by weight of sweetening agent;
- ii) heating to a temperature between 45°C to 60°C to soften the gum base to form a dough;
- iii) adding 3 to 3.5% by weight of nicotine source to the dough;

- iv) adding 0.1 to 1.5% by weight of peppermint source or any other flavoring agent such as herein described followed by addition of a further amount of filler and mixing the mass thoroughly to obtain the gum;
  - v) converting the said mass into gum pieces containing nicotine at a level of 1.0 to 7 mg per piece.
26. A process for preparing gum based product as claimed in claim 21, wherein the gum based product is chewing gum.
27. A process for preparing gum based product as claimed in claim 22, wherein the gum based product is chewing gum.
28. A process for preparing gum based product as claimed in claim 21, wherein the dough is reheated following addition of nicotine source for uniform mixing of the nicotine source with the dough.
29. A process for preparing gum based product as claimed in claim 21, wherein the filler is incorporated in the mix at a level of between 15-80% of the total filler to be present in the chewing gum and at a subsequent stage adding the balance filler in an amount of between 20-85%.
30. A process for preparing gum based product as claimed in claim 22, wherein the dough is reheated following addition of nicotine source for uniform mixing of the nicotine source with the dough.
31. A process for preparing gum based product as claimed in claim 22, wherein the filler is incorporated in the mix at a level of between 15-80% of the total filler to be present in the chewing gum and at a subsequent stage adding the balance filler in an amount of between 20-85%.
32. A process for preparing gum based product as claimed in claim 21, wherein the said gum pieces are formed by spreading the mass obtained in step iv) of the process in the form of a sheet of uniform thickness and cut into shaped pieces of size adapted to deliver the said amount of nicotine per piece of chewing gum.

33. A process for preparing gum based product as claimed in claim 22, wherein the said gum pieces are formed by spreading the mass obtained in step iv) of the process in the form of a sheet of uniform thickness and cut into shaped pieces of size adapted to deliver the said amount of nicotine per piece of chewing gum.
34. A process for preparing gum based product as claimed in claim 21, wherein the flavoring agent is selected from the group consisting of germanium oil, cardamom flavor, saffron flavor, clove oil, cinnamon flavor, tobacco flavor A, tobacco flavor B, tobacco flavor C, cardamom powder, and menthol powder or mentha piperita oil as peppermint source.
35. A process for preparing gum based product as claimed in 34, wherein the flavoring agent is selected from the group consisting of:

<u>Flavoring agent</u>	<u>Range (% by wt)</u>
Germanium oil	0.7-0.9
Cardamom flavor	2.0-3.0
Saffron flavor	0.15-0.35
Clove oil	0.15-0.35
Cinnamon flavor	0.5-0.6
Tobacco flavor A	0.5-3.5
Tobacco flavor B	1.0-4.5
Tobacco flavor C	0.5- 1.5
Cardamom powder	0.5-1.5
Peppermint source	0.5-2.0.

36. A process for preparing gum based product as claimed in 35, wherein the flavoring agent is selected from the group consisting of:

<u>Flavoring agent</u>	<u>Preferred range (% by wt)</u>
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Germanium oil	0.75 – 0.85
Cardamom flavor	2.0 – 3.0
Saffron flavor	0.2 – 0.3
Clove oil	0.2 – 0.3
Cinnamon flavor	0.5 – 0.6
Tobacco flavor A	2.2 – 3.0
Tobacco flavor B	3.0 – 3.5
Tobacco flavor C	0.8 – 1.2
Cardamom powder	0.8 – 1.2
Peppermint source	0.8 – 1.2.

37. A process for preparing gum based product as claimed in claim 21, wherein the dough forming medium is selected from the group consisting of liquid sorbitol, maltitol syrup, and liquid glucose.
38. A process for preparing gum based product as claimed in claim 22, wherein the dough forming medium is selected from the group consisting of liquid sorbitol, maltitol syrup, and liquid glucose.
39. A process for preparing gum based product as claimed in claim 21 wherein the nicotine source is prepared by a process comprising:
  - filling up fine scrap of tobacco in a metallic column;
  - passing stream through the column and collecting the condensed extract of tobacco at the bottom of the column;
  - continuing the cycle till the extraction is complete;
  - passing the collected extract through a falling film evaporator to concentrate the extract to 35% of the initial tobacco weight;
  - cooling to room temperature; and adding said flavoring agent.
40. A process for preparing gum based product as claimed in claim 22 wherein the nicotine source is prepared by a process comprising:
  - filling up fine scrap of tobacco in a metallic column;

passing stream through the column and collecting the condensed extract of tobacco at the bottom of the column;

continuing the cycle till the extraction is complete;

passing the collected extract through a falling film evaporator to concentrate the extract to 35% of the initial tobacco weight;

cooling to room temperature; and adding said flavoring agent.